Yosemite V3
SW Management Introduction
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YV3 Multi Configs Management

- **Multi configs**: Enables several expansion options
- **Manageability**: BMC and BIC via IPMI, BMC and CPLD via i2c
- **Identification**: BMC can identify the type through Board_Type

<table>
<thead>
<tr>
<th>Config name</th>
<th>Config A</th>
<th>Config B</th>
<th>Config C</th>
<th>Config D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1U/2U server config</td>
<td>1OU</td>
<td>1OU</td>
<td>2OU</td>
<td>2OU</td>
</tr>
<tr>
<td>Expansion cards installed per server</td>
<td>None</td>
<td>Front Expansion Board with up to 4xM.2</td>
<td>1. Front Expansion Board with Dedicated NIC of 100G SH</td>
<td>1. Front Expansion Board with up to 4xM.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. 2U Expansion Board with 6xDual M.2 + PCIe Switch</td>
<td>2. 2U Expansion Board with 6 x M.2 option with no PCIe Switch</td>
</tr>
<tr>
<td>OCP NIC 3.0 NIC</td>
<td>1x 50G, MH</td>
<td>1x 50G, MH</td>
<td>2x 100G, SH</td>
<td>1x 50G, MH</td>
</tr>
</tbody>
</table>
**BMC**

- Code architecture: BSP, Kernel, common app and project code.
- The following table shows the common and difference in the source code in different projects. (% is the commonality)

<table>
<thead>
<tr>
<th></th>
<th>BSP (U-boot)</th>
<th>Kernel</th>
<th>Common code</th>
<th>Project code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common</strong></td>
<td>(90%) The drivers and lib supported by u-boot are common, including the VERIFY-BOOT</td>
<td>(85%) The drivers and lib supported by kernel are common</td>
<td>(80%) This layer contains common utilities and common functions</td>
<td>(30%) Only the hierarchical structure is similar</td>
</tr>
<tr>
<td><strong>Platform specific</strong></td>
<td>(10%) Different Projects can initialize their hardware and select the required driver through the settings of device tree(dts) and config</td>
<td>(15%) Different Projects can initialize their hardware and select the required driver through the settings of device tree(dts) and config</td>
<td>(20%) According to the needs of different projects, it is necessary to add new tools and develop new functions</td>
<td>(70%) The functions and applications are mostly different</td>
</tr>
</tbody>
</table>
YV3 Management Topology: config B
YV3 Sensor Monitor Topology
YV3 Firmware Update

- All FW update start on Baseboard(BB) BMC
  - NIC Card FW
    - BIC/BICBL
    - VR/CPLD FW
    - BIOS
YV3 Firmware Update

- Front Expansion Card (FEC)
  
- BIC/BICBL FW

- M.2/ASIC/FPGA FW

- VR/CPLD FW
YV3 Management Functions

- **Management Interface**
  - NCSI: IPv4 and IPv6
  - UART: SOL support
  - IPMI(I2C): IPMI Stack and OEM command support
  - USB: BIOS and CPLD FW updated

- **Event LOG Management**
  - Bridge Command Handle
    - Front EPB BIC → Server BIC → BB BMC
    - Front EPB BIC ← Server BIC ← BB BMC
  - HOST/PCH Command Handle
    - Server BIC → BB BMC

- **Power Management**
  - Sled-Cycle
  - 12V-Cycle/On/Off, DC Cycle/On/Off
  - Power On/Off expansion board and M.2

- **Fan Management**
  - Manual mode
  - Individual fan table
  - Compliant with OCP’s FSC specification
YV3 Management Functions

- Event Management
  - Sensor monitor event
  - System event log
- Firmware Management
  - Display firmware version
  - Update firmware image
- Sensor Management
  - Mainboard sensor monitor
  - Integrate each slot sensor reporting
  - Support analog, discrete and event-only sensor type

Debug Interface

- UART: UART → CPLD → M.2
- JTAG: CPLD → ASIC
- ASD: IPMI → BIC → CPU

OCP LCD Debug Card:
- POST Code Frame
- System Info Frame
  - Serial Number
  - Part Number
  - BMC IP
  - FW version
  - ME status etc.
- Critical SEL Frame
- Critical Sensor Frame
- GPIO Status Frame
- User Setting Frame
- BMC Error Code
Call to Action

- OpenBMC is not only compatible with IPMI spec, but also provides more software utilities for users to have a more intuitive and convenient experience. You can find the OpenBMC public code: [https://github.com/facebook/openbmc](https://github.com/facebook/openbmc)
Thank you!